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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/663,914 | 09/17/2003 | Futoshi Nakamura | 008312-0305894 2649 | |
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| PILLSBURY WINTHROP, LLP | | | RICKMAN, HOLLY C | |
| P.O. BOX 105 MCLEAN, VA | | | ART UNIT | PAPER NUMBER |
| MODELITY, VI | | | 1773 | |

DATE MAILED: 08/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Application No. Applicant(s) NAKAMURA ET AL. | | | | | | | |
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| Examinar | | Application No. | Applicant(s) | | | | |
| Holly Rickman 1773 1774 1775 | Office Action Summany | | NAKAMURA ET AL. | | | | |
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| THE MAILING DATE OF THIS COMMUNICATION. Edeficients of time may be available under the providence of 3 CPR 1.136(a). In no event, however, may a reply be kinely filed after SIX (6) MCNTIS from the making date of this communication apply within the statistory minimum of thiny (30) days will be considered fromly. If NO period for reply is specified above, the maximum statistory period will help yet and life to six (6) MCNTIS from the making date of this communication. Failwho perely visible in the set or extended period for reply will, by statule, cause the application to become ABANDONED (38 U.s.C. § 133). Any pady received by the Office six than treve moritar after the mailing date of this communication, even it sinely filed, may reduce any converted public term adjustment. See 37 CFR 1.764(b). Status 1) Responsive to communication(s) filed on 07 June 2004. 2a) This action is FINAL. 2b) This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 9.9.15 and 17-20 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) Claim(s) 9.9 and 20 is/are allowed. 6) Claim(s) 9.9 and 15 is/are objected to. 7) Claim(s) 17 and 18 is/are objected to so the Examiner. 7) The specification is objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in aboyance. See 37 CFR 1.85(a). Replacement drawing sheel(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d). 11) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) Mone of: 1. Certified copies of the priority documents have been received in Application No. 3. Copies of the certified copies of the priority documents have been received in this National Stage application fro | Period for Reply | ears on the cover sneet with the c | orrespondence address | | | | |
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Application/Control Number: 10/663,914

Art Unit: 1773

DETAILED ACTION

Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 8-9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable Kiuchi et al. (US 5589262).

Kiuchi et al. disclose a magnetic recording medium having a first soft magnetic layer with a first crystal structure, a second soft magnetic layer with a second crystal structure not equivalent to that of the first layer, and a perpendicular magnetic recording layer thereon (see Figures 12-13; col. 9, lines 14-23; col. 20, lines 64-67). The reference teaches that the specific examples shown in Figures 12 and 13 have a total soft magnetic layer thickness of 5000 Å (col. 9, lines 37-40). However, the reference teaches that the thickness of the soft magnetic underlayer affects the recording efficiency of the medium (Figure 49). The reference teaches that a recording efficiency of 28% or greater is sufficient and as shown in Figure 49, this value varies depending on the soft magnetic underlayer thickness and the permeability of the soft magnetic material (see col. 16, line 49 to col. 17, line 3).

Application/Control Number: 10/663,914

Art Unit: 1773

Thus, it would have been obvious to one of ordinary skill in the art to determine a suitable thickness for the soft magnetic underlayer structure shown by Kiuchi et al. in Figures 12 and 13 depending on the permeability of the material and the minimum desired recording efficiency. This optimization of thickness would have been obvious since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

- 3. Claims 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
- 4. Claims 19-20 are allowable over the closest prior art to Kiuchi et al. (US 5589262). Kiuchi et al. fail to teach or suggest the claim limitation directed to the saturation magnetization of each individual soft magnetic layer relative to the saturation magnetization value of the layers together under a bulk state.

Response to Arguments

5. Applicant's arguments filed 6/7/04 have been fully considered but they are not persuasive.

Applicant argues that Kiuchi et al. teaches a recording structure wherein the soft magnetic layers have domain structures as compared to the present invention which is

Application/Control Number: 10/663,914

Art Unit: 1773

described in the specification as suppressing the generation of domain walls. This argument is most because the claims do not limit the recording medium to structure wherein domain walls are absent or suppressed.

Applicant further argues that Kiuchi et al. teach a soft magnetic layer structure having a thickness of 4.0-20.0 microns (i.e., a minimum of 40,000 Å). However, Applicant's arguments do not address the portion of the Kiuchi reference which discloses a soft magnetic layer thickness of 5000 Å. In the Office action mailed 3/23/04, it was argued that the disclosure of this thickness in combination with the teaching that soft magnetic layer thickness is a result effective variable that affects recording efficiency would have made it obvious to one of ordinary skill in the art at the time of invention to optimize this particular parameter. Applicant's arguments do not address this position.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1773

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Holly Rickman
Primary Examiner
Art Unit 1773

hr August 24, 2004